Feasibility of harvesting, holding and culturing *Donax spp.* for resource enhancement aquaculture

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Objective A: Develop and document efficiency of various mass-harvesting techniques.

The project is near completion with objective A. The project team is continuing the data analysis to format presentable conclusions. Harvests have been ongoing through the winter months to provide an adequate supply of *Donax spp*. for the holding tests.

Harvests have produced variable results through the months of November, December, and January. The *Donax* have seemingly followed their elusive migration during this seasonal period. We have pursued the clam from Atlantic Beach to Bogue Inlet only to find the clams in patchy spots around the fishing piers. The substrate around the piers was fine sand to 80:20, sand to shell, with a slightly sloping beach. The beach consisted of a heterogeneous mixture of *Donax*, small *Emerita*, and various size shell material. The *Donax* were incorporated in the top 5 cm of the substrate with the majority of clams ranging from 1 cm to 3 cm. The clam congregations were erratic along the beach with patches mainly found under the piers. Environmental conditions such as rainfall and temperature changes influenced the migration of these patches to unknown areas of the beach. Through extensive searching and collection, only 3 liters of *Donax* were collected during the months of November and December.

Objective B: Compare and refine feasibility of two long-term holding methods.

Construction of the all holding systems for the project was suspended until a sufficient amount of *Donax* is collected. The migration patterns of the *Donax* were evident when only a small amount was collected during November and December. A smaller holding system has been constructed inside the CCC aquaculture building to facilitate a small number of clams and also to allow for observations and preliminary studies.

The harvesting data from 2005 as well as prior *Donax spp*. research suggests a lack of clam supply during the winter. Collection data from last spring indicates that the *Donax* should return to the intertidal zone roughly during the month April when the water temperature reaches 20C. Attempts to hand harvest and mechanical harvest clams for holding tests will continue every month until a large quantity is reached.

A fully functional holding system that has incorporated raceways and upwellers has been running consistently for one month. We will use this system to run the first test to compare the raceway and upweller for growth and survival of the *Donax spp*. Bi-monthly growth data will be collected by sieving the clams through various sieves and measuring volume of each size class. By comparing the volumes over time we will formulate a growth curve. Mortality will be measured and is considered a more important parameter than growth to overall holding efficacy.

1 meter *Donax* raceway

46 cm x 15 cm *Donax* upweller

Objective C: Test and improve techniques for aquaculture propagation of *Donax*

Monthly gonad investigations are continuing and will continue until the end of the project. Analysis of the gonad data from the previous year shows that the gonads are mature during February and April. Future spawning attempts will take place during these months in order to maximize success with natural spawning attempts.

Future Goals

The project team is currently formatting data and results to present the findings at various conferences and meetings. We have submitted an abstract for presentation to the 2006 Annual Conference of the Tidewater Chapter- American Fisheries Society. This meeting will be held at Atlantic Beach January 26-28, 2006. Another presentation will be given to the NC Shellfish Growers Association quarterly board meeting on Jan 23, 2006.